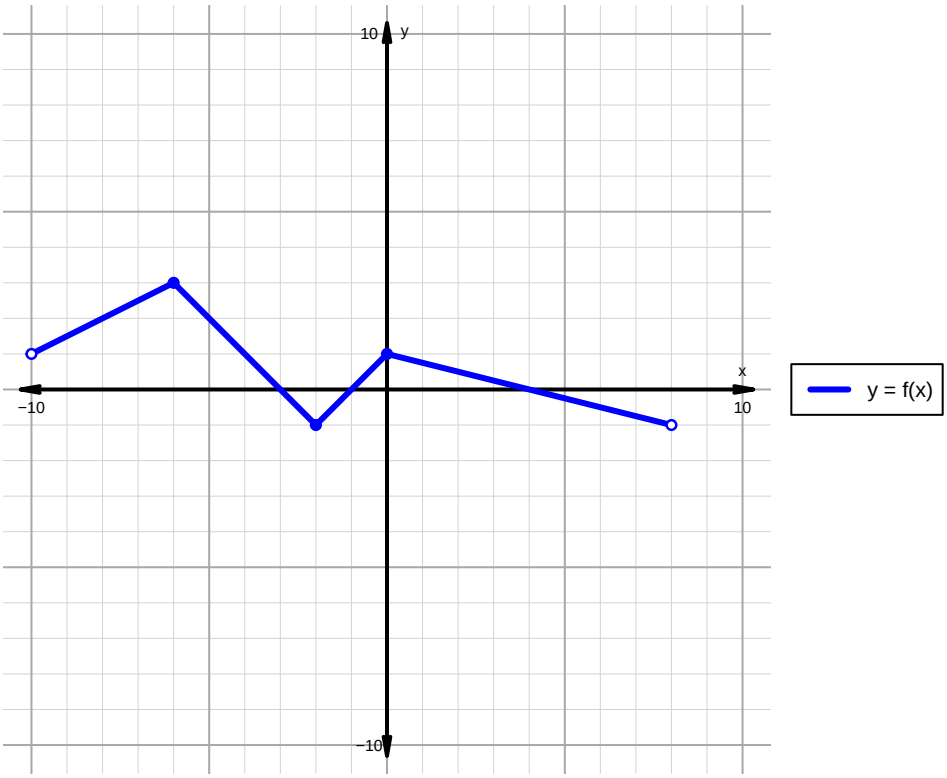
Name: Date:

## Intervals, Transformations, and Slope Solution (version 172)

1. The function $f$ is graphed below.




Indicate the following intervals using interval notation. Remember, you can use $\cup$ between two intervals to indicate the union. Except for range, all intervals will indicate $x$ values; this is standard.

| Feature | Where |
|---|---|
| Positive | $(-10,-3)\cup(-1,4)$ |
| Negative | $(-3,-1)\cup(4,8)$ |
| Increasing | $(-10,-6)\cup(-2,0)$ |
| Decreasing | $(-6,-2)\cup(0,8)$ |
| Domain | $(-10,8)$ |
| Range | $(-1,3)$ |

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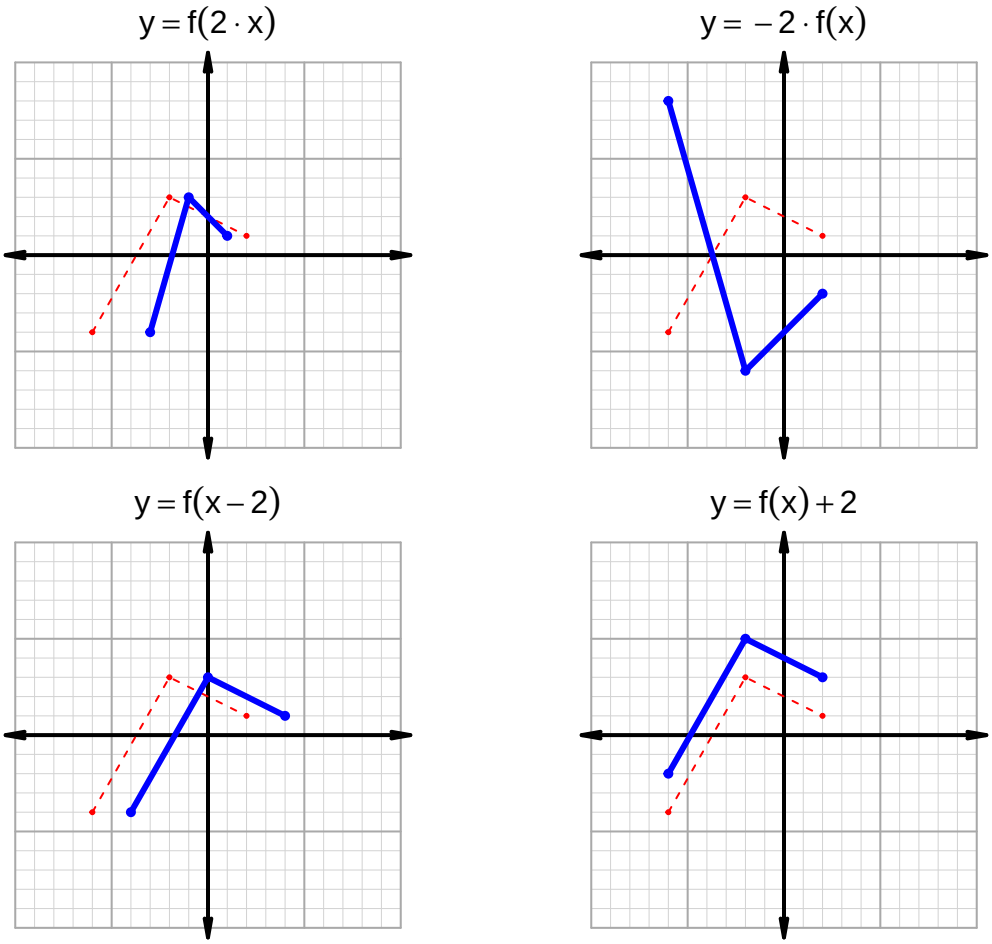
2. In the four graphs below, $y = f(x)$ is graphed as a dotted line. With a solid line, please graph the transformations indicated by the equations below.




3. Let function $g$ be defined by the table below. Use the formula $\frac{g(x_2)-g(x_1)}{x_2-x_1}$ to find the average rate of change between $x_1 = 37$ and $x_2 = 85$. Express your answer as a reduced fraction.

| $x$ | $g(x)$ |
|---|---|
| 31 | 85 |
| 37 | 31 |
| 73 | 37 |
| 85 | 73 |

$\frac{g(85)-g(37)}{85-37} = \frac{73-31}{85-37} = \frac{42}{48}$

The greatest common factor of 42 and 48 is 6. Divide numerator and denominator by the greatest common factor.

$$\text{AROC} = \frac{7}{8}$$